

# Patent Claims

1. A light scanning device for exciting and detecting secondary light, especially fluorescent light, on a sample (22), comprising

a light emission device (10) for emitting exciting light (11) with a wavelength suitable for exciting secondary light on or in said sample (22),

a focussing optics (34, 44) for focussing the exciting light on a subarea of said sample (22),

a sample holding device (20, 21) for releasably holding the sample (22),

a detection unit comprising a detection optics (32, 42) for the secondary light emitted by the sample in response to excitation and a detector device (31, 41) for converting the detected and imaged secondary light into electric signals,

**characterized in that** the sample holding device is adapted to be rotated for rotating the sample relative to the exciting light in such a way that different subareas of said sample can be excited by means of the exciting light so as to emit secondary light.

2. A light scanning device for exciting and detecting secondary light, especially fluorescent light, on a sample (22), comprising

a light emission device (10) for emitting exciting light (11) with a wavelength suitable for exciting secondary light on or in said sample (22),

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a focussing optics (34, 44) for focussing the exciting light on a subarea of said sample (22),

a sample holding device (20, 21) for releasably holding the sample (22),

a detection unit comprising a detection optics (32, 42) for the secondary light emitted by the sample in response to excitation and a detector device (31, 41) for converting the detected and imaged secondary light into electric signals,

359/210 characterized in that the focussing optics (34, 44) is rotatably supported so as to conduct the exciting light along a circular arc on the sample.

3. A light scanning device according to claim 1, **characterized in that** the focussing optics is adapted to be radially displaced relative to an axis of rotation of the sample holding device.

4. A light scanning device according to claim 2, **characterized in that** the sample holder is adapted to be displaced in the radial direction relative to an axis of rotation of the focussing optics.

5. A light scanning device according to one of the claims 1 to 4, **characterized in that** the detection unit and the focussing optics (34, 44) are coupled together and have, at least partially, a common optical path.

6. A light scanning device according to claim 4, **characterized in that** the focussing optics (34, 44) and the detection unit have a common beam splitter (33, 43) so as to unite or separate the optical paths of the excitation light and of the secondary light.

7. A light scanning device according to claim 6, **character-**

8. A light scanning device according to claim 6, **characterized in that** the beam splitter reflects the light incident thereon in a ratio of 50:50.

10. A light scanning device according to claim 9, **characterized in that** said focussing optics and detection unit pairs are mechanically coupled.

12. A light scanning device according to one of the preceding claims, **characterized in that** a blocking filter for suppressing the exciting light is arranged in front of the detector device.

14. A light scanning device according to claim 13, **characterized in that** the detector device and/or the light emission device are coupled to the detection optics and the focussing optics, respectively, for transmitting light via

optical fibres.

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15. A light scanning device according to one of the preceding claims, **characterized in that** a colour filter is provided in front of the detector device so as to transmit a specific wavelength of the secondary light.

16. A light scanning device according to one of the preceding claims, **characterized in that** the light emission device comprises a plurality of laser diodes each having a different output wavelength.

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